ILLINOIS BUSINESS REVIEW

A MONTHLY SUMMARY OF BUSINESS CONDITIONS FOR ILLINOIS

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HIGHLIGHTS OF BUSINESS IN JANUARY

Business activity continued at a high level in January, although some important segments of the economy compared unfavorably in their performance with the preceding month or the same month a year ago. The auto industry helped to maintain the generally high rate of industrial output that has prevailed in recent months by producing 642,000 passenger cars, an 8 percent increase over the previous month and nearly 5 percent above January, 1956. However, auto sales in January failed to match industry expectations and a further increase in inventories occurred. At the same time, the industry was reducing its inventories of steel, with adverse effects on steel orders and output. Although steel tonnage was still very high, it exceeded January, 1956, output by only a few thousand tons and mills operated below capacity for the first time in many weeks, with actual production falling below weekly scheduled output by the end of the month.

Electric power output continued its upward climb, spurred by unusually cold weather in January. Department store sales in January were up less than 2 percent over those of last year, and with retail prices up somewhat more the physical volume fell slightly. After allowance for seasonal factors, dollar sales were down about 2 percent from December to January. Paperboard production was down about 10 percent from January a year ago, and lumber production in the first three weeks was 13 percent below the comparable 1956 period. The latter decline reflected the continued slump in residential construction. Heavy construction contract awards, which at the very high levels of last year contributed greatly to the record volume of construction, fell 32 percent in the first four weeks of January as compared with the same period in the previous year. Reduced activity in other industries was reflected in movements of goods by rail and truck. In the four-week period ending January 26 total freight carloadings were down 6 percent from the same period in 1956.

Employment Drop

Employment declined by 1.7 million and unemployment increased by almost half a million between mid-December and mid-January. Both changes were attributed to seasonal cutbacks in Christmas retail and postal jobs and in construction and other outdoor work. It is estimated that more than 1.2 million workers, mostly housewives and students who held temporary Christmas jobs, left the labor force.

The employment total of 62.9 million and the unemployment figure of 2.9 million were about the same as for January, 1956. However, the decline in total employment from mid-December was the largest in eight years.

January nonfarm employment was the highest for any January on record, although it was 1.5 million below the previous month. Manufacturing employment was down slightly more than seasonally to 16.9 million as a result of larger-than-seasonal declines in apparel, radio and television manufacturing, furniture, and fabricated metals industries, as well as normal reductions in food processing and lumber.

Construction Outlays Down Seasonally

Outlays for new construction amounted to $3.0 billion in January, a decline of 10 percent from the $3.4 billion for December, but still 3 percent above the $2.9 billion January record established last year. On a seasonally adjusted basis, expenditures for the month were at an annual rate of $44.8 billion, slightly above actual outlays in 1956.

Private construction declined more than seasonally to $2.2 billion in January. New houses accounted for $895 million of this, a drop of 16 percent from December and 9 percent from a year ago. Stores and farm buildings contributed to the fall in total outlays, whereas spending for industrial plants, office buildings, churches, schools, hospitals, and public utilities set new January records.

Outlays by Federal, state and local governmental units for public construction were 12 percent above January a year ago, although down 4 percent from December. Record January expenditures for highways, schools, sewers, and water projects were noted.

Consumer Debt Rise Continues

Consumer debt increased $1.2 billion in December to bring the total outstanding to $41.9 billion at the end of the year. The increase during the year amounted to $3.2 billion. Installment debt made up $31.5 billion of the total on December 31, a rise of $528 million in the month and $2.5 billion in the year. The increases in the total and in the components during December, 1956, were smaller than the December, 1955, advances and those for the whole year were only about half as large as in 1955.

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The Federal Reserve's Responsibility

At a press conference on the Federal budget for fiscal 1958, Secretary of the Treasury Humphrey said that if the increasing cost of government were not stopped, "we'll have a depression that will curl your hair." This remark appears to have been widely misinterpreted. He was not concerned about any immediate threat of deflation. He was merely expressing fear of the reaction that might come later, after more extreme inflation had run its course. His prediction was one of those that threaten a disease in order to sell a cure. It was an attempt to line up the support of anti-deflation sentiment for anti-inflation policy.

Secretary Humphrey's remark may be taken as support for the "tight money" policy of the Federal Reserve Board. The theory behind that policy is to impose a restraint which will minimize the extremes of the boom and therefore also minimize the extent of any subsequent reaction. Practically nobody, however, wants to be restrained at the peak of the boom. Resistance to control has recently taken form in protests from various parts of the economy. Widespread criticism was given specific attention in hearings on Federal Reserve policy held by a subcommittee of the Joint Economic Committee, with Representative Patman (D., Texas) as chairman. President Eisenhower called for a comprehensive two-year study of the situation by a special "National Monetary and Financial Commission" he proposed to appoint. Some congressmen felt this was just a way of ignoring the protests, since too much could happen in so long a period. The House Banking Committee decided to proceed with a sweeping investigation of its own, again under Rep. Patman's chairmanship.

Functions of the Federal Reserve

The controversy clearly goes beyond current monetary policy. It involves the basic functions of the Federal Reserve System and ultimately, the question whether we should have any monetary control at all. Rep. Patman points out, first, that the Constitution assigns to Congress the power to control money and its value, and second, that existing law, which delegates this power to the Federal Reserve, can be changed.

In the literature on money and banking, it is generally taken for granted that the Federal Reserve has stabilization as well as other central bank functions. It is held responsible, not only for supplying the money needed to conduct the nation's business, but for preventing deterioration in the value of money through inflation. These are conflicting objectives: The money supply must expand; but it must not expand too fast. The great inflations of history resulted from undue expansion of the money supply.

Most experts in the field agree that FRB's stabilization powers are primarily anti-inflationary and should be directed toward keeping booms from getting out of hand. Its operations are relatively ineffective in a depression; it can then make funds available, but if nobody wants to spend them, they merely lie idle. The extreme easy money conditions of the 1930's contributed little to economic recovery.

Even in times of prosperity, it has not been able to impose as effective restraints as many considered desirable. For one thing, a given money supply can carry a larger volume of business when the money passes more rapidly from one transaction to the next. The velocity of circulation has been rising steadily in the last two years, and is now at a level not exceeded since the early 1920's.

Obstacles to effective monetary action also arise from conflicts with other aspects of national policy. When the government needs financing, the Treasury does not want its ability to raise funds hampered by tight money policies. Conflict tends to develop whenever public demands for large spending programs and for low taxes put the government in the position of running deficits. Fortunately, deficits are not a factor in the present situation.

From this broad view, it may be seen that Federal Reserve action to stabilize the economy can be effective in limited circumstances only, primarily those where prosperity is high, tending to push prices up, and where there is little prospect of a government deficit. Taking these as the circumstances that specifically call for the use of monetary controls, it may be said that there never was a better situation than 1956 to justify their application. In 1956, there were some shortages; prices were moving up faster than is desirable; and the government budget showed a surplus. The opponents of tight money would apparently rule out this control in the one situation where it was truly applicable.

Is the Federal Reserve Guilty?

Recent developments call attention to the inadequacies of monetary control as well as to the opposition it faces. Despite the fairly tight rein kept on Federal Reserve Bank credit, commercial loans continued to expand sharply during 1956, though at a rate moderately below 1955. Mortgage debt also continued to expand at a rate not far below 1955. Consumer credit expansion amounted to over $3 billion, somewhat more than half as much as the year before. The expansion of credit over a two-year period was tremendous, and it came up against the limits of resources available in our money and capital markets.

The coincidence of all these demands for funds, straining against a relatively fixed money supply, brought on the tight money conditions of late 1956. That these conditions were not wholly without effect may be judged from the howls of pain from those whose activity was restricted. Most of these came from home builders who were not able to compete effectively for the funds still flowing to borrowers. The showing that others, too, were placed at a disadvantage — for example, small business

(Continued on page 8)

THE PETROCHEMICAL INDUSTRY

Through general usage the term "petrochemical" has come to refer to a chemical compound or element derived from petroleum or natural gas and intended for chemical markets. For the most part, these oil- and gas-derived products consist of synthetic organic chemicals produced in the course of petroleum refining operations or directly from natural gas.

Products

Basic hydrocarbons, such as methane, ethane, propane, and butane, may be extracted from petroleum or natural gas and used as starting material for a series of chemical processes. In the case of ethane, for example, it is thermally cracked and an intermediate petrochemical called ethylene is produced. The ethylene becomes a "building block" and can be converted into primary products such as ethyl alcohol, polyethylene (plastics), or ethylene oxide. In turn, the ethylene oxide can be converted into numerous other products such as ethylene glycol (antifreeze and plastics), acrylonitrile (synthetic fibers, rubber, and plastics), or ethanolamine (detergents).

The increased demand for synthetics has opened up an amazing future for petrochemicals. Altogether, they have found their way into nearly 3,000 chemical substances and new products are being added at the rate of approximately 400 a year. Petrochemical products have penetrated every aspect of our daily life and are found in our food, clothes, homes, and transportation facilities.

Petrochemicals are used in making fungicides, insecticides, pesticides, fertilizers, refrigeration compounds, and synthetic vitamins, all of which have a bearing on our food supply. Synthetic fibers such as nylon, Dacron, Orlon, Dynel, and Acrilan have made large inroads in the textile industry. The use of plastics in housing, furniture, luggage, table tops, and flooring has left its impression in the home, as has the production of synthetic detergents that take the place of soap. Other uses, such as synthetic rubber, oil additives, antiknock compounds, and paints, are well represented in the automotive field.

Development and Growth

The Standard Oil Company of New Jersey commenced making alcohols from petroleum raw materials as early as 1919, but Union Carbide and Carbon Corporation is credited with pioneering the commercial aspects of the petrochemical industry during the early 1920's. While engaged in research on hydrocarbon gases, its scientists developed ethylene, propylene, and various other products that form the basis of the industry today.

Prior to World War II, the industry moved slowly. In 1940 capital investment amounted to $350 million and output was about 4 billion pounds a year. However, by 1945 the industry had more than doubled; these figures had increased to approximately $900 million and 8 billion, respectively. By 1950 the pattern had been set, and in 1955 investment stood at $4 billion and output was 31 billion pounds — a constant rate of growth, output having doubled every five years since 1940.

The industry currently consists of 197 firms with 362 major plants operating, building, or planned, as compared with 132 firms and 255 plants in 1953, the earliest year for which such statistics are available. Total production now represents a fourth of all United States chemical output, and judging from its rise during the past decade, it may well reach a third by 1960. However, petrochemicals already represent more than half of all chemicals in value.

The Industry in Illinois

There are currently 11 active petrochemical plants located in Illinois, and the State ranks about seventh in the nation in petrochemical production. Illinois, however, is favorably located so far as future expansion is concerned. Most indications are that the bulk of expansion in petrochemicals will be made by chemical firms, rather than by the oil industry. The former tend to prefer locations in the North, where the natural gas is available by pipeline and the plants are more strategically located with regard to markets.

Of special interest to the industry is the new, rapidly expanding petrochemical plant of National Petro-Chemicals Corporation at Tuscola. Formed in 1951 by National Distillers and Panhandle Eastern Pipe Line Company, this plant was built in 1953 at an initial cost of $50 million, but it has already undergone three expansions and is approaching a valuation of $100 million. Located on two major transcontinental pipelines, it produces petrochemicals from the hydrocarbons extracted from natural gas, and has the largest single unit ever built for cracking ethane to make ethylene. In addition, it boasts the largest synthetic alcohol plant in existence and produces more than 25 percent of the nation's ethyl alcohol. Last year it installed what is believed to be the largest anhydrous alcohol unit in the world. After individual hydrocarbons have been extracted, the gas is returned to the pipeline. If necessary, hydrocarbons may be reinjected into the natural gas stream in order to maintain B.T.U. content.

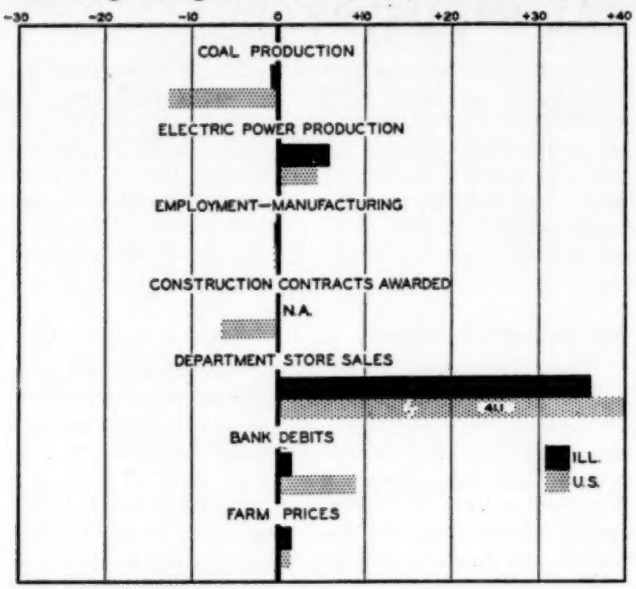
Also located at Tuscola is National Distiller's U.S.I. Chemical Division, which currently produces sulphuric and phosphoric acids, industrial alcohols, and ammonia. There is now under construction the first petrochemical plant ever built for making isosebacic acid, a product used by the plastics industry but currently derived from castor oil.

Other major producers of petrochemicals in Illinois are located primarily at the ends of the Illinois Waterway. Situated at the south end are Standard Oil of Indiana and Sinclair Chemicals at Wood River, and Socony Mobil Oil at East St. Louis. At the north end are Pure Oil, Lemont; Spencer Chemical, Calumet City; and Continental Oil and Ninol Laboratories, Chicago. Another, Commercial Solvents, is also on the Waterway at Peoria. Two others, Velsicol, at Marshall, and Witco Chemical, Lawrenceville, are in the southeast section of the State.

STATISTICAL SUMMARY OF BUSINESS ACTIVITY

SELECTED INDICATORS

Percentage changes November, 1956, to December, 1956



N.A. Not available.

ILLINOIS BUSINESS INDEXES

Item	Dec. 1956 (1947-49 =100)	Percentage Change from Nov. 1956	Percentage Change from Dec. 1955
Electric power[1]	226.0	+ 5.9	+ 1.0
Coal production[2]	88.0	− 0.8	−17.2
Employment—manufacturing[3]	108.0	− 0.2	− 0.9
Weekly earnings—manufacturing[3]	155.0[a]	+ 1.0	+ 3.6
Dept. store sales in Chicago[4]	122.0[b]	− 0.8	+ 7.0
Consumer prices in Chicago[5]	121.0	0.0	+ 2.1
Construction contracts awarded[6]	n.a.	.....	.....
Bank debits[7]	177.9	+ 1.3	+ 0.3
Farm prices[8]	79.0	+ 1.3	+11.3
Life insurance sales (ordinary)[9]	296.6	+10.1	+18.4
Petroleum production[10]	136.3	+ 4.4	+ 4.7

[1] Fed. Power Comm.; [2] Ill. Dept. of Mines; [3] Ill. Dept. of Labor; [4] Fed. Res. Bank, 7th Dist.; [5] U. S. Bur. of Labor Statistics; [6] F. W. Dodge Corp.; [7] Fed. Res. Bd.; [8] Ill. Crop Rpts.; [9] Life Ins. Agcy. Manag. Assn.; [10] Ill. Geol. Survey.
[a] November data; comparisons relate to October, 1956, and November, 1955. [b] Seasonally adjusted. n.a. Not available.

UNITED STATES MONTHLY INDEXES

Item	Dec. 1956	Percentage Change from Nov. 1956	Percentage Change from Dec. 1955
	Annual rate in billion $		
Personal income[1]	333.5[a]	0.0	+ 5.0
Manufacturing[1]			
Sales	344.4[a]	0.0	+ 2.5
Inventories	51.4[a, b]	+ 0.2	− 0.4
New construction activity[1]			
Private residential	14.4	− 8.5	− 6.0
Private nonresidential	15.2	− 6.1	+ 9.9
Total public	10.8	−20.8	+ 9.1
Foreign trade[1]			
Merchandise exports	18.2[c]	− 8.5	+14.8
Merchandise imports	12.0[c]	−11.6	− 5.1
Excess of exports	6.2[c]	− 1.8	+93.0
Consumer credit outstanding[2]			
Total credit	41.9[b]	+ 3.0	+ 3.8
Installment credit	31.6[b]	+ 1.7	+ 2.4
Business loans[2]	31.3[b]	+ 3.0	+17.4
Cash farm income[3]	n.a.	.....	.....
	Indexes (1947-49 =100)		
Industrial production[2]			
Combined index	147[a]	+ 0.7	+ 2.1
Durable manufactures	166[a]	+ 0.6	+ 3.1
Nondurable manufactures	131[a]	+ 1.6	+ 0.8
Minerals	130[a]	0.0	+ 0.8
Manufacturing employment[4]			
Production workers	107	+ 0.1	− 0.9
Factory worker earnings[4]			
Average hours worked	103	+ 1.0	− 0.7
Average hourly earnings	154	+ 1.0	+ 6.2
Average weekly earnings	159	+ 2.0	+ 5.4
Construction contracts awarded[5]	206	− 6.7	−18.0
Department store sales[2]	129[a]	− 1.5	+ 4.9
Consumers' price index[4]	118	+ 0.2	+ 2.9
Wholesale prices[4]			
All commodities	116	+ 0.3	+ 4.4
Farm products	89	+ 0.8	+ 6.9
Foods	103	− 0.5	+ 5.0
Other	125	+ 0.3	+ 4.0
Farm prices[3]			
Received by farmers	87	+ 1.2	+ 6.1
Paid by farmers	116	0.0	+ 4.5
Parity ratio	82[d]	+ 1.2	+ 2.5

[1] U. S. Dept. of Commerce; [2] Federal Reserve Board; [3] U. S. Dept. of Agriculture; [4] U. S. Bureau of Labor Statistics; [5] F. W. Dodge Corp.
[a] Seasonally adjusted. [b] As of end of month. [c] Data are for November, 1956; comparisons relate to October, 1956, and November, 1955. [d] Based on official indexes, 1910-14 = 100. n.a. Not available.

UNITED STATES WEEKLY BUSINESS STATISTICS

Item	1957 Jan. 26	1957 Jan. 19	1957 Jan. 12	1957 Jan. 5	1956 Dec. 29	1956 Jan. 28
Production:						
Bituminous coal (daily avg.) thous. of short tons	1,702	1,654	1,708	1,483	1,020	1,737
Electric power by utilities mil. of kw-hr	12,410	12,556	12,327	11,671	11,196	11,512
Motor vehicles (Wards) number in thous.	168	168	167	102	112	162
Petroleum (daily avg.) thous. bbl.	7,396	7,431	7,396	7,417	7,392	6,994
Steel 1947-49=100	143	143	146	145	135	143
Freight carloadings thous. of cars	666	657	681	562	488	692
Department store sales 1947-49=100	96	100	107	93	112	94
Commodity prices, wholesale:						
All commodities 1947-49=100	117.0	116.7	116.3	116.3	116.3	111.9[a]
Other than farm products and foods 1947-49=100	125.2	124.9	124.7	124.6	124.7	120.4[a]
22 commodities 1947-49=100	91.3	92.3	92.0	92.5	92.6	88.8
Finance:						
Business loans mil. of dol.	30,349	30,595	30,753	31,137	31,313	26,211
Failures, industrial and commercial number	258	278	256	222	174	284

Source: *Survey of Current Business, Weekly Supplements.*

[a] Monthly index for January, 1956.

RECENT ECONOMIC CHANGES

Production Up Moderately

Industrial production finished the year 1956 about 2 percent above where it began. The year was marked by virtual stability in output of nondurable goods and minerals, with most of the movement in total production a reflection of volatility in durable goods. During the first half of 1956 output of durables tended moderately downward as growth in production of machinery and other commodities associated with the capital goods boom was more than offset by a sharp decline in transportation equipment, particularly autos, and by lesser declines in primary and fabricated metal products. In the second half, after the steel strike, most of the lines that were declining earlier in the year moved upward.

For the year as a whole industrial production averaged 143 (1947-49 = 100), up 3 percent from 1955's average. This was down 1 point from the December, 1955, volume, reflecting the leveling in output last year. In contrast, general strength in most lines carried 1955 output up 12 percent from the 1954 recession low.

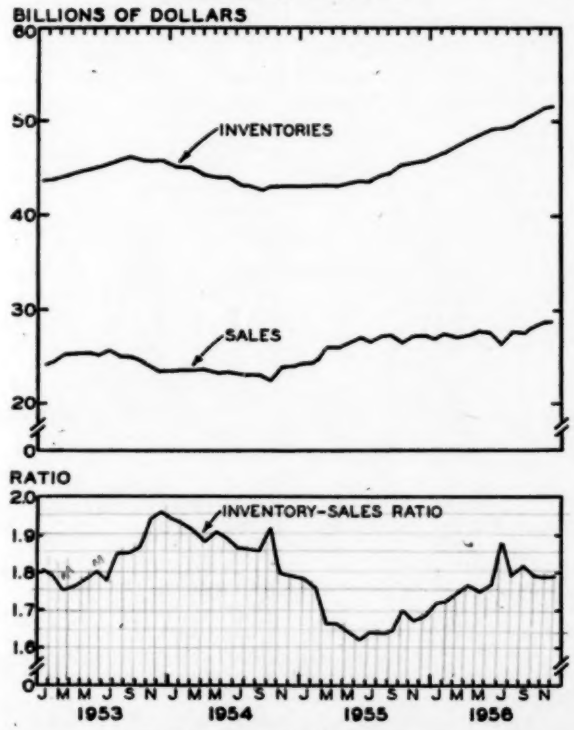
Sales, Inventories Gain

Manufacturers' sales in December were unchanged from the November level of $28.7 billion after adjustment for seasonal factors. Sales of both durable and nondurable goods industries were stable during the month. For the full year, sales totaled $331 billion. This was up 4 percent from 1955, but higher prices accounted for the larger part of the gain.

At the end of December manufacturers' inventories totaled $51.4 billion, an increase of $5.5 billion over December, 1955. About a third of this increase reflected higher replacement costs. In the fourth quarter, book values increased by $1.3 billion, a rate comparable with quarterly changes evident over the past year.

As shown by the chart, the inventory-sales ratio at the end of 1956 was at the early 1953 level. Earlier, the ratio had run above this level as a result of depressed sales during the steel strike. Over the past four years the ratio has displayed the patterns of typical inventory cycles. The previous cycle peaked in 1953, as sales declined. In 1954 the ratio declined as sales leveled off, production was cut back, and inventory liquidation was accelerated. With the recovery in sales late in 1954 and through early 1955, the ratio continued to fall as inventories stabilized. Since mid-1955 output has exceeded sales and carried stocks to new record highs, pushing the inventory-sales ratio to its current level. Both total inventories and their ratio to sales tend to lag behind changes in sales and production by several months.

MANUFACTURERS' SALES AND INVENTORIES
(Seasonally adjusted)



Source: U. S. Department of Commerce.

Savings Advance

Individuals' savings, consisting of liquid assets, pension reserves, and private and government insurance, continued at a high rate in the third quarter. Net of the increase in mortgage and consumer debt, savings amounted to $3.9 billion compared with $2.2 billion in the second quarter and $3.5 billion in the third quarter of 1955, according to estimates by the Securities and Exchange Commission. During the third quarter, liquid savings in securities, mainly corporate issues, moved up most rapidly; checking accounts expanded in contrast to declines in the first two quarters; and private pension and insurance reserves continued at about the same rate as earlier in the year.

In the first nine months of 1956, savings totaled nearly $11 billion, compared with only $6 billion in the same 1955 period. The advance reflects not only increased personal income but also a reduced rate of debt accumulation and a tendency for individuals to save a higher percentage of their income than in 1955. In the first nine months of 1955, mortgage and consumer debt increased by nearly $14 billion, whereas last year it moved up slightly less than $10 billion in this period. Department of Commerce estimates, conceptually more comprehensive than the SEC data, indicate personal saving amounted to 7.2 percent of disposable income in the first three quarters of 1956 compared with 6.2 percent in the like 1955 period. The rise in saving and decline in the rate of debt expansion was largely at the expense of sales of consumer durable goods — primarily autos and houses.

Debt Expansion Slows

The reduced rate of debt expansion in 1956 was not confined to the mortgage and consumer goods market. Estimates for the full year by the Council of Economic Advisers indicate total net public and private debt moved up almost $33 billion, above the average for the postwar period. However, the increase was modest compared with the $52 billion advance experienced in 1955. The increase was confined to the private sector of the economy, since net debt of the Federal government was liquidated to the extent of $6 billion, more than offsetting a further increase of $4 billion in state and local obligations.

Corporations added nearly $15 billion to their outstanding debt in 1956 compared with $19 billion the year

(Continued on page 8)

STOCK MARKET THERMOMETERS

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Vice-President, Manufacturers National Bank of Detroit

Comparing individual common stocks in terms of their dividend yields or their ratios of market price to earnings is a familiar procedure. We also frequently see statistical records or charts of these quantities over a period of time for individual stocks or for various market "averages." Less well known is the fact that, for such an "average" or cross-section of stocks, yields and price/earnings ratios have in the past varied between such limits as to afford some advance guidance to major movements of the average stock price. For example, normally, over at least the past thirty years, whenever the Standard and Poor's index of 50 industrial stocks has reached a level of 17 or more times its most recent annual earnings, it has thereafter tended to decline; when it has fallen to a point 11 times or less, the stock price index has thereafter tended to rise. Similarly, when yields have dropped below 3.5 percent, stocks have usually dropped, and when they have exceeded 6.6 percent, stocks have usually risen.

Yield and price-earnings ratio can therefore be called *stock thermometers,* measuring roughly the relative degree of market overvaluation or undervaluation of the fundamentals of dividends and earnings. Detailed records of many years are necessary to calibrate such a thermometer for the quantitative readings which would have been most consistent and most timely in their warnings. The quantitative buy and sell indications given above seem to be, on the basis of the record, the best for the particular stock index used.

Seven Measures of Stock Values

The accuracy of forecasting, on a historical and retrospective basis, would have been improved by using additional thermometers to measure overvaluation or undervaluation of stocks. This is true because earnings and dividends can become so abnormally high or low as to give a false indication or none at all. A battery of several such thermometers relates stock prices to additional fundamentals of stock value, such as net worth per share (book value), and the yields on high-grade bonds, which to an extent compete with stock yields. Of the battery of seven such thermometers used by the writer, most are more or less familiar to students of the subject, and the writer can claim originality only in establishing the quantitative buy and sell indications and in combining the results to yield useful warnings of impending *major* turns in the particular stock price average used. These seven thermometers are as follows:

Yardstick I. This is a ratio between actual stock prices and a "fair" value of stocks. The latter is the result of multiplying together three factors: (a) normal dollars-per-share earnings on the stocks in the index, as read off a long-term trend line arrived at after correcting for commodity price inflation, (b) the current

READINGS OF STOCK THERMOMETERS

Major Highs and Lows of Stock Prices (1)		Yardstick Ratios		Price/ Earnings Ratio	Stock Yield %	Bond/ Stock Yield Ratio	Low-Priced/ High-Grade Common Stock Ratio	Market Price/Book Value Ratio	No. of 7 Thermometers Giving Buy or Sell Signals Prior to Turn	TCR Level of Readings at Major Highs and Lows of Stock Prices	No. Months Lag to Market Top or Bottom	
Date	Price	I	II								From 5th Indication	From TCR Signal
Buy Signal at:		.81	.73	11.00	6.60	.50	.90	1.03	b=buy	0.74+0.35 cumulative deficiency		
Sell Signal at:		1.29	1.10	17.00	3.48	.70 (.80–to 1940)	1.70	1.60	s=sell cum.	1.21+0.70 cumulative excess		
HIGHS												
8-31-29	250.7	2.78s	2.62s	18.66s	3.26s	1.51s	1.74s	3.77s	7s	2.01s	26	24
2-28-37	174.4	1.82s	1.52s	16.67s*	3.77s	.85s	1.61b*	2.22s	6s	1.39s	14	8
12-31-38	130.2	1.29s	1.11s	23.25s	3.32s	.93s	.75b	1.61s	6s	1.21	2	No Signal
5-31-46	184.0	1.22b*	1.22s	26.02s	3.45s	.72s	2.00s	1.77s	6s	1.36s	7	−2
LOWS												
6-30-32	35.1	.47b	.24b	23.88s	10.15b	.54b*	.63b	.36b	6b	.63b	7	1
3-31-38	83.6	.81b	.71b	9.35b	5.64b*	.57b*	.73b	1.03b	7b	.73	1	No Signal
4-30-42	77.2	.61b	.63b	8.69b	8.19b	.35b	.82b	.91b	7b	.60b	7	5
5-31-49	138.3	.60b	.70b	5.67b	6.81b	.40b	.91*	1.02b	6b	.62b	4	2
RECENT												
6-30-56	500.2	1.60s	1.48s	13.04*	3.90*	.84s	.96*	2.18s	4s	1.24+0.41	No Signal Given	
7-31-56	526.8	1.69s	1.57s	13.73*	3.70*	.90s	.94*	2.29s	4s	1.30+0.50	"	" "
8-31-56	506.7	1.60s	1.51s	13.21*	3.86*	.91s	.99*	2.20s	4s	1.26+0.55	"	" "
9-30-56	483.2	1.52s	1.47s	12.92*	4.16*	.87s	1.01*	2.10s	4s	1.21+0.55	"	" "
10-31-56	485.6	1.50s	1.48s	12.98*	4.14*	.92s	.98*	2.11s	4s	1.22+0.56	"	" "
11-30-56	479.7	1.49s	1.49s	13.43*	4.30*	.88s	.99*	2.09s	4s	1.21+0.56	"	" "
12-31-56	498.9	1.55s	1.55s	13.97*	4.14*	.93s	1.00*	2.17s	4s	1.26+0.61	"	" "
										Net cumulative excess to date 0.61 points.		

(1) Standard & Poor's 50 industrials at close of each month. 1926=100.
* Reading no longer in buy or sell area but cumulative interpretation regards unreversed prior indication as still in effect. Data are subject to revision as later and more complete statistical figures are available.

level of wholesale commodity prices, and (c) a long-term average ratio of price to earnings of 12.88.

Yardstick II. This is another ratio between actual and "fair" stock prices. It utilizes the observed tendency for the price-to-earnings ratios of the stock index to move inversely to the rate of earnings on the book value or net asset value of the stocks. The ratio of the actual to the "fair" price-to-earnings ratio is the same as the ratio of actual to "fair" stock prices.

Price to Earnings Ratio (actual). This is the conventional simple ratio of actual stock prices to the most recent 12 months' earnings.

Stock Yield (percent). Alone among the seven thermometers, this widely used basis of comparison goes lower the higher the stocks are. As used in this work, it is the total cash dividends paid per share on the stocks in the index during the most recent 12-month period, divided by the market price at the end of the period.

Ratio of Bond Yield to Stock Yield. This is a variant on the simple stock yield, obtained by dividing the yield on Standard and Poor's A1+ corporate bonds by the stock yield. The closer stock yields approach to yields on prime quality bonds, the more competitively attractive the bonds are, in income return, and the more likely are stocks to be overpriced.

Ratio of Low-Priced to High-Grade Common Stocks. This is the ratio between two of the Standard and Poor's stock price subindexes, one of 23 low-priced stocks and the other of 13 high-grade issues. In past periods of business and speculative optimism the former has tended to outrun the latter, for various reasons. The converse has also prevailed during depressions.

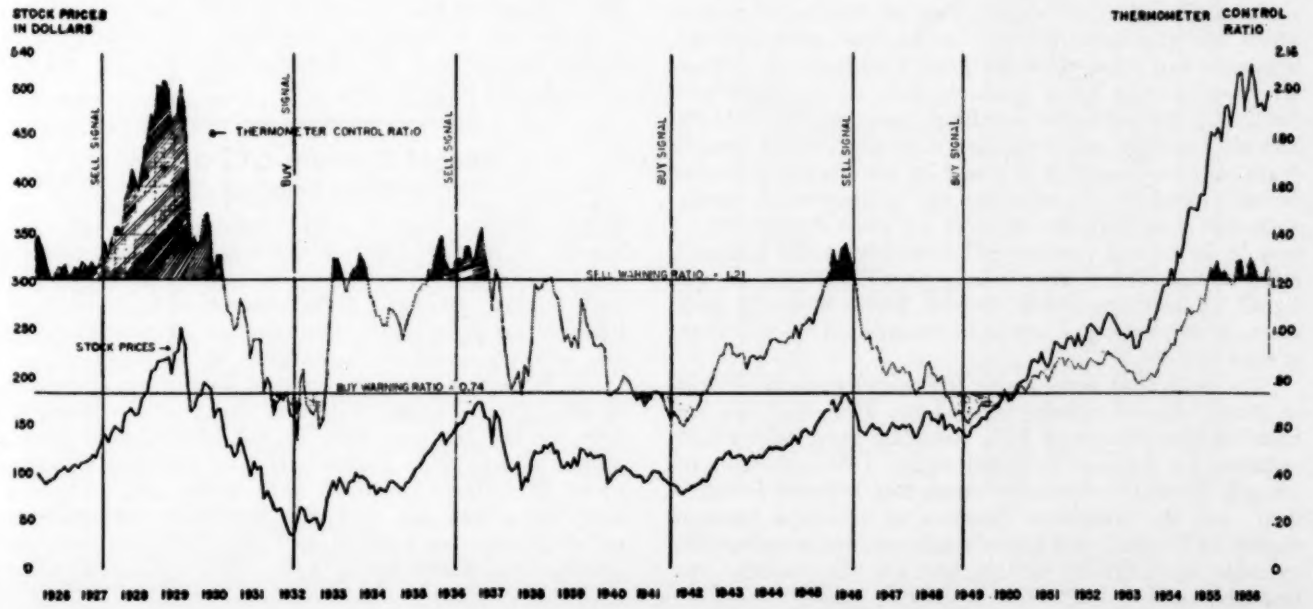
Market Price to Book Value Ratio. Over the years, most companies will reinvest substantial amounts of retained net earnings and thus add to their earnings and dividends as well as to the net asset value (book value) of their stocks. The latter figure is a fairly stable measure of economic value, above and below which the market price tends to fluctuate. The ratio is obtained by dividing the stock price at the close of each period by the preceding year-end book value per share of stock.

The buy indication and sell indication for each of these thermometers are listed near the head of the accompanying table. When a thermometer has risen above its sell indication point, it is regarded as giving a sell indication until it has *reversed* by moving to or below its buy indication point, though it may long remain in neutral territory between these two points. Hence, at all times, the total number of buy and sell indications is seven. Historically, the best market results would have been gained by selling when the number of sell indications increased from a smaller number to five or more, and buying when the number of buy indications increased from a smaller number to five or more. It must be frankly admitted that numerous minor and some major stock price movements have been preceded by fewer indications; this fact may reflect the limitations of this approach, and the force of intangibles such as the approach of war or the impact of mass sentiment.

Combining the Seven Thermometers

A *second approach* uses the month-by-month *quantitative* readings of the seven thermometers, by relating each series to its own long-term (1926-54) average. The resulting series of seven index numbers for each month is then averaged to yield a figure which, by its construction, represents *where stocks are selling, relative to where they "should" be selling,* on the basis of the long-term relationships between stock prices and the fundamental sources of value used. They "should" sell at 1.00 on this scale, which we term the Thermometer Control Ratio or TCR.

Buy and sell signals have been worked out for this TCR; these are also shown in the table. It was empirically determined that the reaching of a set sell or buy indication level by the TCR in any month was not a sufficiently dependable guide; it required confirmation by accumulating, month by month, a total excess over, or a deficiency below, a "warning" reading. When the TCR has reached a level of 1.21, equivalent to a 21 percent overvaluation of the fair value of stocks under then-prevailing conditions of earnings, dividends, bond yields, book values, and so forth, we start to accumulate from month to month the excess over 1.21. A TCR reading of 1.26 in the ensuing month would show an excess of 0.05, and, say, 1.24 in the succeeding month would raise this to 0.08 and so on. The TCR major *sell* signal has been empirically set at an accumulated *excess* of 0.70. Simi-


STOCK PRICES IN DOLLARS
THERMOMETER CONTROL RATIO
SELL SIGNAL
BUY SIGNAL
SELL SIGNAL
BUY SIGNAL
SELL SIGNAL
BUY SIGNAL
← THERMOMETER CONTROL RATIO
SELL WARNING RATIO = 1.21
STOCK PRICES →
BUY WARNING RATIO = 0.74
1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956

larly, the "warning" ratio prior to a major *buy* signal is 0.74, with an accumulated *deficiency* in month-to-month TCR readings of 0.35. Thus, the record indicates that since 1926, stocks have never long continued to be substantially overvalued by more than 21 percent or undervalued by more than 26 percent (1.00 minus 0.74).

The accompanying chart sets forth the month-by-month records of the stock price index and of the TCR, showing also the sell warning ratio of 1.21, the buy warning ratio of 0.74, and the areas of accumulated excess of TCR readings above the former and below the latter. Vertical lines mark the dates when TCR major sell and buy signals were given on this basis.

Supplementing the Thermometer Controls

By reason of inevitable changes in the structure of the economy and in the financial relationships which reflect such changes, it would be most unrealistic to depend heavily upon this or any other analytic system derived solely from historical data. This is true for (at least!) two reasons. Speculative and even investment decisions are not and cannot be *wholly* rational. Anyone is free to place any interpretation he wishes on past and present facts, or to disregard the record. Feelings about money tend to reflect both anxiety and avarice.

Most of us feel uncertain enough about future prices to seek corroboration of our judgments by others. Thus, the impact of mass psychology on stock prices is most important; stocks may be decidedly overvalued or undervalued for some time, and they may undergo fairly wide price swings without apparent justification from the rational fundamentals of value.

Moreover, as the economy evolves over time, the financial institutions, the tax rates, the investment relationships involved, also change. Hence, dependent as we are on historical data, we cannot be confident that even the most factual statistics of the past will prove a dependable guide to the future. Systems necessarily built on hindsight often fail when put to work in forward time.

The system described here, though based on thirty years of hindsight, has been operating in forward time only for two years. It is thus unproven, though it appears correct in *not* having given a major sell signal.

For well over a year, four thermometers have been giving sell indications, one less than the number most useful as a major sell signal. Two of the thermometers which are still some distance away from giving a sell indication are *stock yield* and *price/earnings ratio*. These are based on the latest available data for earnings and dividends. Both gave false selling indications in 1932-34, because earnings and dividends were abnormally low. It is conceivable — though it would be historically unprecedented — that present earnings and dividends are so abnormally *high* that one or both of these thermometers may be in a sense "prevented" from giving the fifth sell indication needed to constitute a major thermometer sell signal. If earnings should decline, prices may fall with them, so that no signal would be recorded. This, however, is pure surmise.

The TCR has been above the warning ratio of 1.21 in practically all months since June, 1955, and has accumulated an excess of 0.61, just 0.09 short of the 0.70 required for a major TCR sell signal. This narrowing of the gap does not necessarily mean that a signal is imminent; and the additional elements of variation between signal and actual market setback require considerable exercise of judgment on the part of the investor for best results.

The Federal Reserve's Responsibility

(Continued from page 2)

concerns generally, as compared with large — seems hardly better founded than would be expected in any other circumstances where shortages and cost increases were being encountered.

Whatever the merits of contentions on one side of this issue or the other, the question of interest here concerns what the FRB may have contributed to the present difficulties. A review of its actions indicates extreme caution throughout this period. It talked tight money, and urged restraint in borrowing and spending, but was careful to to do nothing to precipitate a downturn. In the early stages of recovery, the business advance was permitted to progress unrestrained and even welcomed as a measure of the success of the easy money policy initiated in the summer of 1953. After the spring of 1955, rediscount rates were raised by stages from 1½ percent in April, 1955, to 3 percent in August, 1956. In each case, however, the market rate on Treasury bills had come up to the level established earlier before a new advance was made. At the end of 1956, the rediscount rate was being held stable even though the bill rate rose almost a quarter percent above it. Throughout this period, currency in circulation was permitted to advance slowly, as called for by higher incomes and business activity. Federal Reserve credit was held almost constant, but tilted upward rather than down. In view of the expansion in business volume and prices during this period, there appears to be sound justification for Chairman Martin's statement that "If any errors were made, they were on the side of easy money."

Those who are inclined to blame the FRB for present difficulties should reconsider: The facts indicate that the FRB has done nothing to warrant an accusation. It neither condoned excessive borrowing and spending that tightened the market nor took away any of the resources otherwise available to those engaging in such activities. The financial stringency now being encountered could have been avoided only if the FRB had made an even greater volume of credit available to feed the boom. To blame it for not doing this is in effect to charge it with being guilty of failing to take positive action to undermine its own functions.

The present widespread belief in the FRB's "responsibility" suggests that it will be blamed again, at a later date, for any adverse new developments. Whether such future charges will be more realistic than the present ones remains to be shown.

VLB

Recent Economic Changes

(Continued from page 5)

before. Rising interest rates induced firms to draw heavily on internal funds in order to meet their working and fixed capital requirements, but reduced profits coupled with higher dividend disbursements and sacrifice of liquidity positions led to a substantial increase in corporate security issues and large bank borrowings.

In the noncorporate sector, new borrowing, amounting to $20 billion, was $6 billion less than in 1955. Mortgage debt for the full year rose by $13 billion, more than a billion under 1955; commercial and financial debts of about $2 billion — incurred with banks and brokers to carry securities and with life insurance companies on policy loans — were about half the 1955 increase; and consumer indebtedness rose by $3.4 billion, about $2 billion less than in 1955.

BUSINESS BRIEFS

PUBLICATIONS AND DEVELOPMENTS OF BUSINESS INTEREST

Tips on Packaging

With the increasing importance of self-service distribution, packaging has become a major profit factor in business. *The Selling Power of Packaging* by Vernon L. Fladager, specialist in the promotion and advertising field, discusses what the businessman should know about packaging in order to utilize its possibilities more fully. This book is available for $3.50 from McGraw-Hill's Book Information Service, 327 West 41st Street, New York 36, New York.

Efforts to produce a packing-case liner that can withstand all types of climatic conditions resulted in a fungicide-treated industrial paper material that is waterproof and grease-resistant. The producer, Cincinnati Industries, Inc., Lockland, Cincinnati 15, Ohio, used polyethylene to form a moisture barrier. It is laminated between two plies of X-Crepe N, a heavy duty paper with all-directional stretch; then another coating of polyethylene is applied on the inside, and a fungicide coating is applied on the exterior side.

The use of plastics in merchandising is the theme of the *1957 Guide to Improved Packaging,* an eight-page pictorial booklet. Topics covered are films; molded and extruded containers; adhesives, coatings, and laminations; and packages, signs, and displays. Copies of this free booklet are available from the Bakelite Company, 30 East 42nd Street, New York 17, New York.

Trends in Produce Transportation

Longer trips and increased use of trucks as carriers are current trends in produce transportation, according to the United States Department of Agriculture. Markets have drawn on production areas that are increasingly farther away as the problem of fresh produce spoilage has diminished with greater truck and rail speed and improved refrigeration techniques. Although the average length of haul has not increased for all fresh fruits and vegetables, several produce items for specific cities have had significant increases. The average 1955 haul length of celery by rail and truck to New York City was up to 1,604 miles, a gain of 43 percent over 1941. Potatoes and tomatoes showed gains of 56 percent and 35 percent. Apples, tomatoes, and celery showed the largest average haul length increases for selected produce marketed in Chicago, with gains of one-third, two-fifths, and two-thirds respectively.

Improved highways and equipment, faster over-the-road service, and less handling are factors promoting truck transportation. Railroads have countered by speeding up the movement of refrigerator cars and by introducing piggyback service. Even so, total rail shipments of produce from Florida remained relatively stable between the 1946-47 and 1954-55 growing seasons, whereas truck shipments more than quadrupled. With California produce traveling across the country to markets, rail was still the principal mode of transportation. But here, too, trucking has gained, its portion of total shipments having increased from 12 percent in 1951 to 17 percent in 1954.

Tax Guide

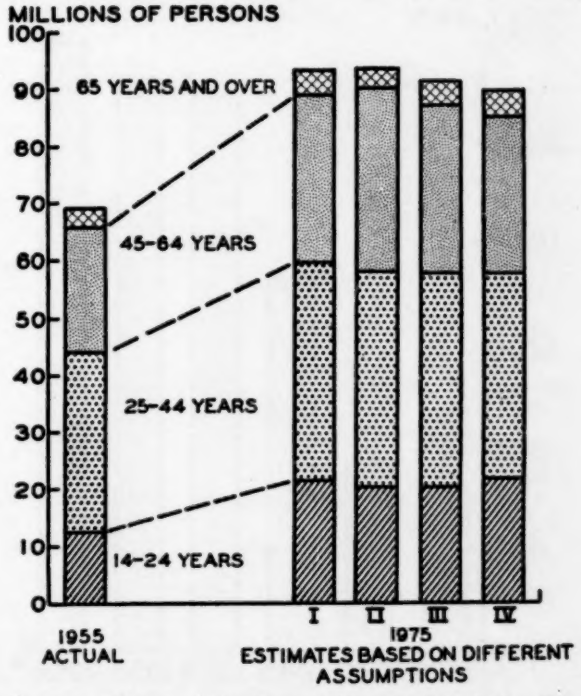
A new source of tax information for the small businessman is the first edition of the *Tax Guide for Small Business;* current plans call for annual revised editions. This booklet is an attempt to provide answers to Federal tax problems resulting from the establishment of a new business, the operation of a going business, or the closing out of a business. It discusses the Federal income tax, Federal employment tax, and Federal excise tax problems of sole proprietors, partnerships, and corporations. Copies of this booklet are available for 30 cents from District Directors of Internal Revenue, field offices of the Small Business Administration, or the Government Printing Office, Washington 25, D. C.

Labor Force Projections

Increases ranging from 30 to 36 percent above the total 1955 labor force of 68.9 million persons have been estimated for 1975 by the United States Bureau of the Census. The four projections (see chart), utilize various assumptions about changing labor force participation in specific age groups, but a single set of population projections. Other assumptions tend to hold down expansion of labor force activity for particular age groups. The first is that school and college enrollment will continue to increase in absolute numbers as well as in proportion of the age groups affected; second, marriage rates at early ages and birth rates will continue at high levels; and third, the long-term downward trend in the employment of men past 65 will continue. Over-all population increases for the 20-year period will more than offset these contracting influences.

Rates of labor force increases will vary between 1955 and 1975 with lower rates during the first part of the period and higher rates expected during the latter years. Primary influences are the first two contracting assumptions listed above.

UNITED STATES LABOR FORCE, 1955 AND 1975



Source: Bureau of the Census, *Current Population Reports,* Series P-50, No. 69.

LOCAL ILLINOIS DEVELOPMENTS

In general, Illinois business in December was more active than during the preceding month. Small gains were recorded for all indicators with the exceptions of coal production and department store sales, which declined slightly.

Comparisons with December, 1955, showed substantial gains in farm prices received, life insurance sales, and business loans extended by leading Chicago banks. On the other hand, coal production declined more than 15 percent.

Popular Seedling

The multiflora rose is topping the nursery order list of the Illinois Department of Conservation. State Forester E. E. Nuuttila reports that the rose's popularity among farmers and conservationists is due to its dense growth and thorns rather than to its blossom. The most common use of the shrub is as a fence. When planted 12 to 18 inches apart, the bushes can develop into a wall about eight feet high and equally thick. As a "living fence," the rose discourages livestock and serves as cover for wild game. It is high enough to act as a wind break, yet its root system does not rob adjacent crops of soil nutrients as the Osage orange has a tendency to do.

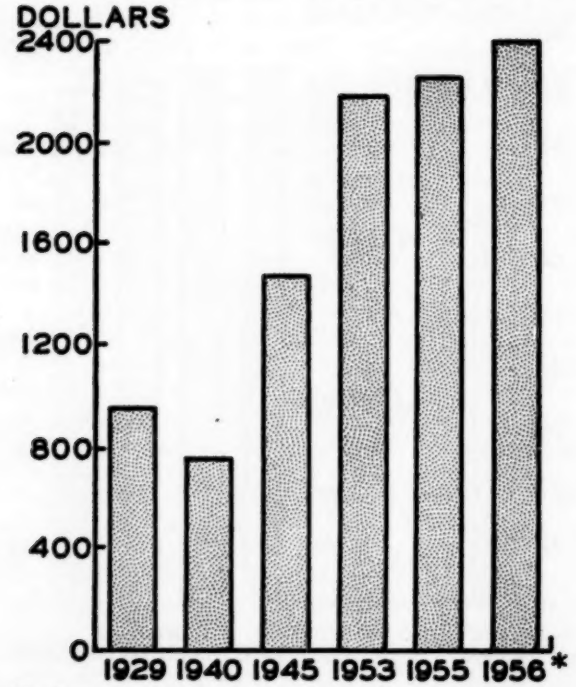
The Highway Division has planted the shrub along the right-of-ways of some state highways to serve as cushions in the event of car accidents and to help control soil erosion. Farmers have been encouraged to allow the Division to plant beds of the rose about 100 feet back from the pavement for use as permanent snow fences.

Personal Income

Illinois personal income established a new high of nearly $21 billion in 1955, according to the United States Department of Commerce, and continued on to new records in 1956. The 1955 figure represented a gain of 6 percent over the previous high in 1954. Of the 1955 total personal income, $20.3 billion was from nonfarm sources. Thus farm income accounted for less than 5 percent of personal income in the State.

Retaining its third place rank among the states, Illinois was preceded by New York and California. However, Illinois ranked eighth among the states on the basis of per capita income, having an average of $2,257 during 1955. This average established a new high with a gain of $72 over the previous high recorded in 1953 (see chart). The estimated 1956 figure exceeds both of these years. Always ranging well above the national average, per capita income in Illinois continued to exceed it by about one-fifth during the past year.

ILLINOIS PERSONAL INCOME PER CAPITA



*Estimated.
Source: U. S. Department of Commerce.

Residential Water Use

The installation of water-using appliances such as dishwashers, food-waste disposers, and automatic and conventional washing machines has been an important factor in the large increases of water used in the Illinois home. A report prepared by Ross Hanson and H. E. Hudson, Jr., of the State Water Survey Division, *Trends in Residential Water Use,* indicated that this factor in addition to the changing number of persons per household unit and the increasing proportion of the urban population that has running water service must be considered carefully in planning public water-supply systems.

Although each community is faced with a different supply problem, the installation of water-using appliances has been concentrated in the higher income communities, generally the larger ones in Illinois. These communities have frequently shown large increases in residential water use without corresponding increases in population, whereas similar per capita gains have not been noted in the smaller communities.

In order to obtain more accurate estimates of community water use, as compared with the current 100 gallons per capita per day method, the authors have suggested a residential per capita and/or per water service connection figure plus a commercial water-use figure on a per service connection basis. Industrial use figures have little meaning on a per capita basis.

Potential Soil Builder

Tree bark, normally considered to be waste material, has been converted into an inexpensive and effective soil builder. Dr. C. Roland McCully, scientist at the Armour Research Foundation of the Illinois Institute of Technology, has stated that the bark soil builder loosens the soil and improves its moisture-holding capacity, serves as a base for fertilizer, and controls the rate at which plants obtain food from the soil. Plant nutrients and the bark compound can be mixed and worked into the ground in one operation.

Several tests were conducted to study the merits of the bark product. In sand, the product gave 46 percent more growth than fertilized controls, 92 percent more than peat moss additions, and 134 percent more than sand with the addition of synthetic exchange resins. In clay, the product gave 120 percent more growth than the fertilized controls and 28 percent more than clay with soil conditioner added. Although the bark soil builder is not yet a finished product, Dr. McCully stated that it has great potential for increasing plant growth at smaller costs.

COMPARATIVE ECONOMIC DATA FOR SELECTED ILLINOIS CITIES

December, 1956

	Building Permits[1] (000)	Electric Power Consumption[2] (000 kwh)	Estimated Retail Sales[3] (000)	Department Store Sales[4]	Bank Debits[4] (000,000)	Postal Receipts[5] (000)
ILLINOIS	$27,021[a]	1,147,342[a]	$577,208[a]		$15,548[a]	$18,396[a]
Percentage change from Nov., 1956	n.a.	+3.4	+5.7	+36	+1.3	+23.7
Percentage change from Dec., 1955	+71.3	+5.5	+2.0	+ 3	+0.3	
NORTHERN ILLINOIS						
Chicago	$19,142	877,973	$419,579		$14,186	$16,032
Percentage change from Nov., 1956	−8.2	+3.4	+5.8	+36	+1.3	+22.5
Percentage change from Dec., 1955	+65.5	+6.3	+2.1	+ 2	+0.0	
Aurora	$ 312	n.a.	$ 8,853		$ 65	$ 159
Percentage change from Nov., 1956	−46.7		+7.5	+35	−1.4	+25.1
Percentage change from Dec., 1955	+116.7		+11.5	+ 5	+5.5	
Elgin	$ 517	n.a.	$ 6,187		$ 41	$ 120
Percentage change from Nov., 1956	+23.1		+0.8	+21	−1.7	−1.9
Percentage change from Dec., 1955	+345.7		+4.2	0	+6.7	
Joliet	$ 390	n.a.	$12,843		$ 82	$ 137
Percentage change from Nov., 1956	−58.1		+8.5	+40	−2.8	+42.3
Percentage change from Dec., 1955	+290.0		+6.3	+ 4	+1.6	
Kankakee	$ 79	n.a.	$ 4,981		n.a.	$ 60
Percentage change from Nov., 1956	−64.6		+3.8	n.a.		+35.3
Percentage change from Dec., 1955	+6.8		−10.8			
Rock Island-Moline	$ 454	22,909	$ 9,357		$ 96[b]	$ 194
Percentage change from Nov., 1956	−48.0	+14.5	−3.9	n.a.	−4.0	+46.8
Percentage change from Dec., 1955	+90.8	−8.1	−6.8		+0.6	
Rockford	$1,813	43,301	$18,818		$ 189	$ 266
Percentage change from Nov., 1956	+57.5	+0.7	+4.8	n.a.	+5.1	+28.9
Percentage change from Dec., 1955	+88.5	+9.6	−1.2		+2.3	
CENTRAL ILLINOIS						
Bloomington	$ 590	8,434	$ 5,778		$ 63	$ 97
Percentage change from Nov., 1956	+324.5	+9.7	+8.0	n.a.	+7.1	+9.4
Percentage change from Dec., 1955	+7.1	+5.2	+1.9		−13.2	
Champaign-Urbana	$ 429	10,994	$ 8,174		$ 70	$ 131
Percentage change from Nov., 1956	+18.8	+4.1	+3.0	n.a.	+5.4	+31.0
Percentage change from Dec., 1955	+180.4	+1.4	−0.1		+11.7	
Danville	$1,415	11,621	$ 6,891		$ 55	$ 80
Percentage change from Nov., 1956	+747.3	+1.8	+8.2	+39	+1.0	+33.6
Percentage change from Dec., 1955	+555.1	+10.9	+2.1	+ 3	+4.5	
Decatur	$ 478	33,691	$12,166		$ 120	$ 131
Percentage change from Nov., 1956	−24.4	+3.7	+2.8	+33[c]	−0.0	+30.5
Percentage change from Dec., 1955	−35.1	+3.0	+2.3	+ 1[c]	−0.5	
Galesburg	$ 62	8,482	$ 4,451		n.a.	$ 46
Percentage change from Nov., 1956	−58.4	+9.8	+0.9	n.a.		+37.3
Percentage change from Dec., 1955	−38.0	+7.8	+1.9			
Peoria	$ 805	53,185[c]	$18,820		$ 229	$ 363
Percentage change from Nov., 1956	+6.6	+1.1	+5.7	+34[c]	+1.6	+38.2
Percentage change from Dec., 1955	+186.5	+2.6	+1.9	+ 3[c]	+2.1	
Quincy	$ 62	9,638	$ 5,341		$ 42	$ 83
Percentage change from Nov., 1956	−87.8	+3.2	+10.7	n.a.	+0.4	+27.7
Percentage change from Dec., 1955	−55.1	+6.1	−0.2		+5.4	
Springfield	$ 237	34,330[c]	$14,878		$ 121	$ 298
Percentage change from Nov., 1956	−17.7	+2.4	+10.2	+45[c]	+1.4	+38.0
Percentage change from Dec., 1955	+54.9	+1.7	+7.9	− 2[c]	+3.1	
SOUTHERN ILLINOIS						
East St. Louis	$ 68	11,804	$ 9,710		$ 151	$ 86
Percentage change from Nov., 1956	n.a.	+7.3	+3.0	n.a.	−0.7	+67.1
Percentage change from Dec., 1955	−54.7	−7.3	+0.5		+13.5	
Alton	$ 101	13,574	$ 5,314		$ 39	$ 50
Percentage change from Nov., 1956	+55.4	−0.5	+12.5	n.a.	−0.1	+66.0
Percentage change from Dec., 1955	+18.8	+5.9	+3.0		−11.9	
Belleville	$ 67	7,405	$ 5,067		n.a.	$ 63
Percentage change from Nov., 1956	−91.5	+2.9	+1.5	n.a.		+33.6
Percentage change from Dec., 1955	+644.4	+3.7	+4.5			

[a] Total for cities listed. [b] Includes East Moline. [c] Includes immediately surrounding territory. n.a. Not available.

Sources: [1] U. S. Bureau of Labor Statistics. Data include Federal construction projects. [2] Local power companies. [3] Data for October, 1956. Comparisons relate to September, 1956, and October, 1955. [4] Research Departments of Federal Reserve Banks in Seventh (Chicago) and Eighth (St. Louis) Districts. Department store sales percentages rounded by original sources. [5] Local post office reports. Four-week accounting period ending December 14, 1956.

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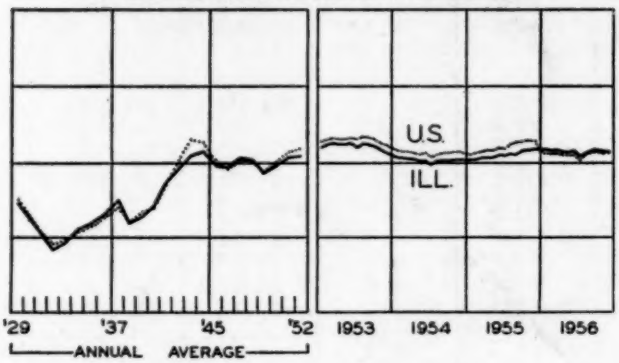
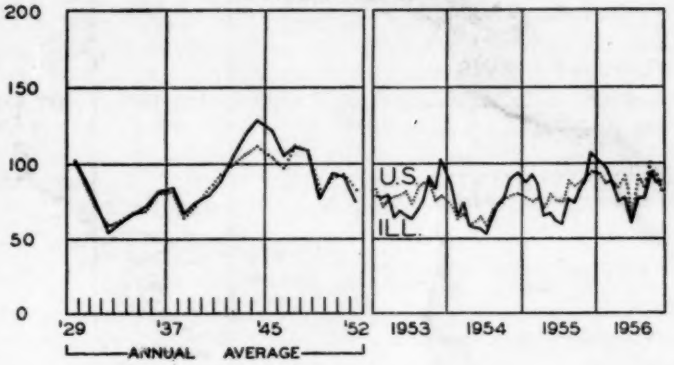
INDEXES OF BUSINESS ACTIVITY

1947-1949 = 100

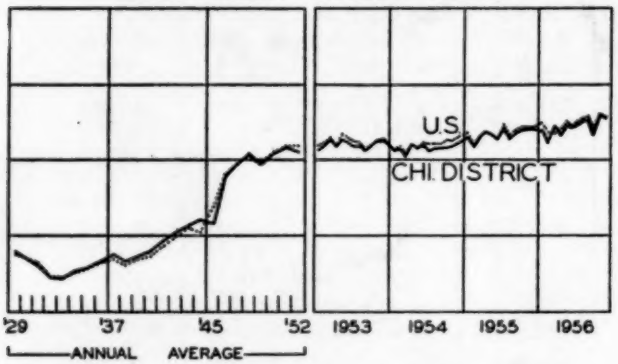
EMPLOYMENT-MANUFACTURING



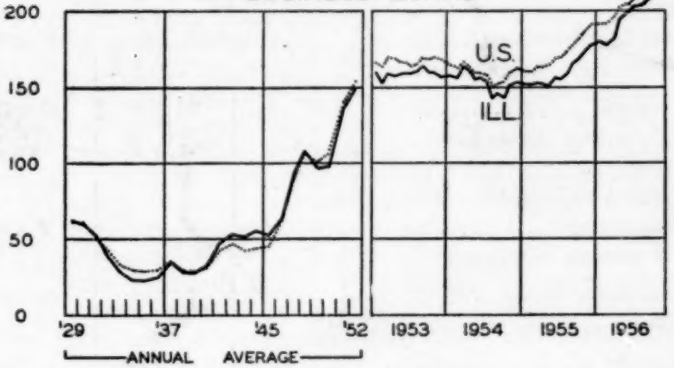
COAL PRODUCTION



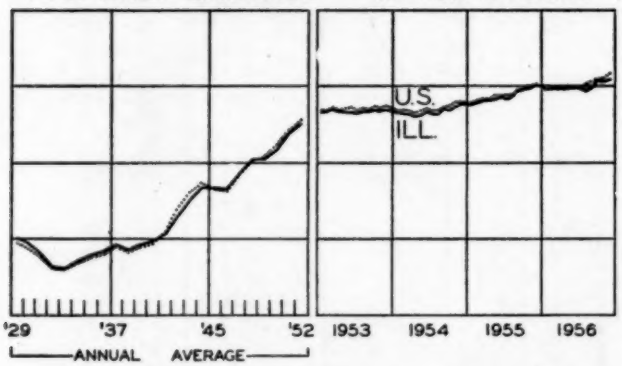
DEPARTMENT STORE SALES



BUSINESS LOANS



AVG. WKLY. EARNINGS — MANUFACTURING



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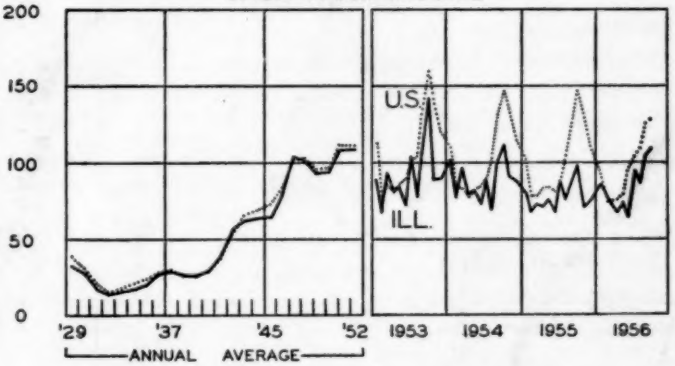
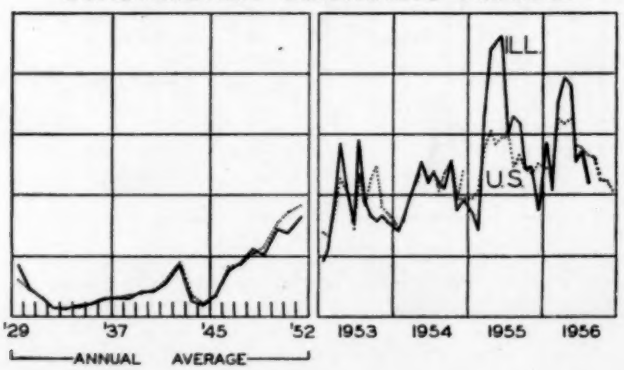
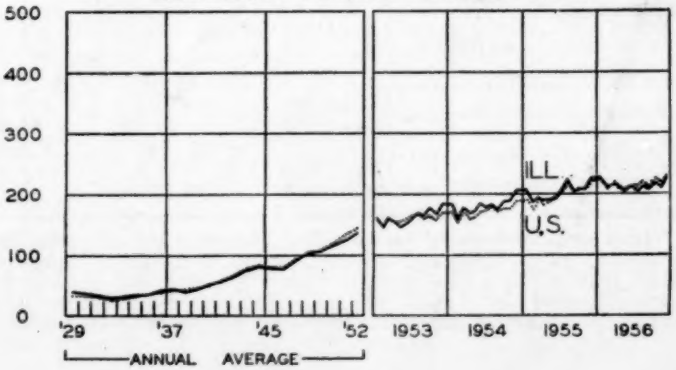


CONSTRUCTION CONTRACTS AWARDED



ELECTRIC POWER PRODUCTION